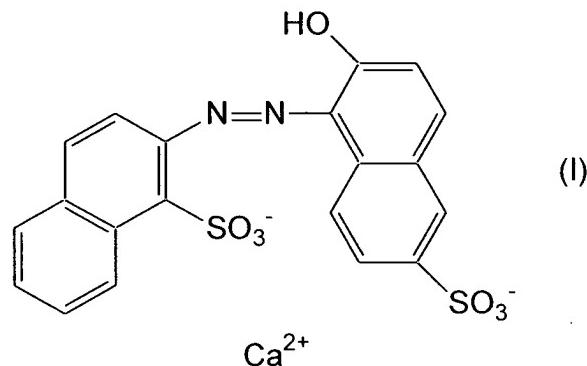


Claims

What is claimed is:

1. A red pigment composition comprising:
a major amount of a pigment represented by Formula I:

5



having a Hue Angle of less than 3° and an Apparent Strength K/S value of at least about 10.

10

2. The red pigment composition according to claim 1 consisting essentially of the pigment represented by Formula I.

15

3. The red pigment composition according to claim 1 having a Hue Angle of less than about 2.5° and an Apparent Strength K/S value of at least about 12.5.

20

4. The red pigment composition according to claim 1 further comprising a minor amount of at least one of an amine surfactant and a sulfosuccinate surfactant.

5. The red pigment composition according to claim 4, wherein the amine surfactant is at least one selected from the group consisting of amine

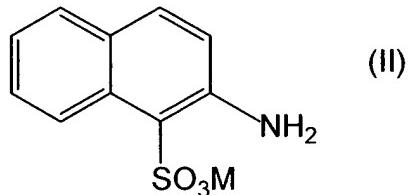
oxide surfactants and ethoxylated amine surfactants.

6. The red pigment composition according to claim 4, wherein the
amine surfactant is at least one selected from the group consisting of N,N-bis(2-
hydroxyethyl)cocoalkylamine oxide, N,N-dimethylcocoalkylamine oxide,
5 alkylamine-guanidine polyoxyethanol, dimethyl (hydrogenated tallow) amine
oxide, dimethylhexadecylamine oxide, bis(2-hydroxyethyl)tallowamine oxide,
coco amidopropyl amine oxide, lauryl (12,14,16 blend) dimethyl amine oxide,
myristyl dimethyl amine oxide, cocamidopropylamine oxide, and stearyl
10 dimethylamine oxide.

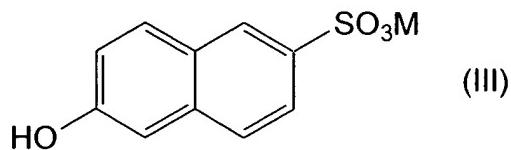
7. The red pigment composition according to claim 1 further
comprising a minor amount of a supplemental pigment formed by coupling a
diazotized supplemental aromatic amine with a supplemental naphthalene
15 coupler and metallizing with calcium.

8. A method of making a red pigment composition comprising:
coupling a diazonium component comprising a compound prepared
from an aromatic amine represented by Formula II

20



wherein M is any one of H, Li, Na, $\frac{1}{2}$ Mg, K, $\frac{1}{2}$ Ca, $\frac{1}{2}$ Sr, NH₄, NR_{4-x}H_x, wherein
R is an alkyl or alkoxy group containing 1 to 4 carbon atoms and x is 0 to 3 with a
25 coupling component comprising an aromatic sulfonic acid coupler represented by
Formula III



wherein M is any one of H, Li, Na, $\frac{1}{2}$ Mg, K, $\frac{1}{2}$ Ca, $\frac{1}{2}$ Sr, NH₄, NR_{4-x}H_x, wherein

5 R is an alkyl or alkoxy group containing 1 to 4 carbon atoms and x is 0 to 3 at a pH of about 4 or more and about 9 or less; and

metallizing with a calcium salt, wherein at least one of the coupling and the metallizing is conducted in the presence of at least one of an amine surfactant and a sulfosuccinate surfactant.

10

9. The method according to claim 8, wherein the aromatic amine represented by Formula II comprises 2-aminonaphthalene-1-sulfonic acid and the aromatic sulfonic acid coupler represented by Formula III comprises a potassium salt of 2-hydroxynaphthalene-6-sulfonic acid.

15

10. The method according to claim 8, wherein at least the metalling is effected in the presence of the amine surfactant, and the amine surfactant is at least one selected from the group consisting of amine oxide surfactants and ethoxylated amine surfactants.

20

11. The method according to claim 8, wherein the diazonium component further comprises a minor amount of a supplemental compound prepared from at least one supplemental aromatic amine selected from the group consisting of 2-amino-5-methoxy-benzenesulfonic acid; 2-amino-5-ethoxybenzenesulfonic acid; 2-amino-4-chloro-5-methoxy-benzenesulfonic acid; 2-amino-4-chloro-5-ethoxy-benzenesulfonic acid; 2-amino-4-methyl-5-methoxy-benzenesulfonic acid; 2-amino-4-ethyl-5-methoxy-benzenesulfonic acid; 2-

25

amino-4,5-dimethoxy-benzenesulfonic acid; 2-amino-4-methyl-5-ethoxy-
benzenesulfonic acid; 2-amino-4-ethyl-5-ethoxy-benzenesulfonic acid; 2-amino-
4,5-diethoxy-benzenesulfonic acid; 2-aminobenzene-1-sulfonic acid; 4-
aminobenzene-1-sulfonic acid; 2-amino-5-methylbenzene-1-sulfonic acid; 3-
5 amino-6-methylbenzene-1-sulfonic acid; 2-amino-4-chloro-5-methylbenzene-1-
sulfonic acid; 2-amino-5-chloro-4-ethylbenzene-1-sulfonic acid; 2-amino-5-chloro-
4-methylbenzene-1-sulfonic acid; 3-aminobenzoic acid; 4-aminobenzoic acid; 2-
amino-5-methylbenzoic acid; 2-amino-6-methylbenzoic acid; 3-amino-2-
methylbenzoic acid; 2-amino-3-methoxybenzoic acid; 4-amino-3-methoxybenzoic
10 acid; 4-amino-5-chloro-2-methoxybenzoic acid; 2-amino-4-chlorobenzoic acid; 3-
amino-4-chlorobenzoic acid; 1-naphthyl amine; 2-naphthyl amine; 4-
aminonaphthalene-1-sulfonic acid; 4-aminobiphenyl-3'-sulfonic acid; 4,4'-
diaminobiphenyl-2,2'-disulfonic acid 2-methoxy-4-nitroaniline; 2-methoxy-5-
nitroaniline; 4-methoxy-2-nitroaniline; 2-amino-4-chloro-5-nitrotoluene; 2-chloro-
15 4-nitroaniline; 2-chloro-5-nitroaniline; 4-chloro-2-nitroaniline; 4-chloro-3-
nitroaniline; 5-chloro-2-nitroaniline; 5-chloro-2-methyl-4-nitroaniline; 2-chloro-4-
methylaniline; 2-chloro-5-methylaniline; 2-chloro-6-methylaniline; 3-chloro-2-
methylaniline; 3-chloro-4-methylaniline; 4-chloro-2-methylaniline; 5-chloro-2-
20 methylaniline; 4-chloro-2-methoxy-5-methylaniline; 4-chloro-2,6-dinitroaniline; 6-
chloro-2,4-dinitroaniline; 2-chloro-4,6-dimethylaniline; 3-chloro-2,6-diethylaniline;
4-chloro-2,6-dibromoaniline; 2-chloroaniline; 3-chloroaniline; 4-chloroaniline; 5-
chloro-2-methoxyaniline; 3-chloro-4-methoxyaniline; and aniline.

12. The method according to claim 8, wherein the coupling component
further comprises a minor amount of at least one supplemental naphthalene
coupler selected from the group consisting of naphthalene; naphthalene-1-
sulfonic acid; naphthalene-1,3-disulfonic acid; naphthalene-2-sulfonic acid; 2-
naphthoic acid; 2-naphthol; 3-naphthol; 1-naphthoic acid; 1-hydroxynaphthalene-
2,7-disulfonic acid; 3-hydroxynaphthalene-1-sulfonic acid; 2-hydroxynaphthalene-

1-sulfonic acid; 5-hydroxynaphthalene-1-sulfonic acid; 1-hydroxynaphthalene-3-sulfonic acid; 1-nitronaphthalene; and 1-chloronaphthalene.

13. The method according to claim 8, wherein coupling is effected in
5 the presence of the amine surfactant at a pH of about 5 or more and about 8 or less.

14. The method according to claim 8, wherein coupling is effected in
the presence of the amine surfactant, and the amine surfactant is at least one
10 selected from the group consisting of amine oxide surfactants and ethoxylated
amine surfactants at a pH of about 5 or more and about 8 or less.

15. A plastic composition comprising a major amount of a plastic and a
minor amount of the red pigment according to claim 1.

16. The plastic composition according to claim 15, wherein the plastic
comprises at least one selected from the group consisting of polystyrene,
polyolefins, polyacrylic compounds, polyvinyl compounds, polyesters, filaments
made of viscose and cellulose ethers, cellulose esters, polyamides,
20 polyurethanes, polycarbonates, polyimides, and polyacrylonitrile.

17. A plastic composition comprising a major amount of a plastic and a
minor amount of the red pigment composition made according to claim 8.

25 18. The plastic composition according to claim 17, wherein the plastic
comprises at least one selected from the group consisting of polystyrene,
polyolefins, polyacrylic compounds, polyvinyl compounds, polyesters, filaments
made of viscose and cellulose ethers, cellulose esters, polyamides,
polyurethanes, polycarbonates, polyimides, and polyacrylonitrile.

19. A coating composition comprising a major amount of a coating vehicle and a minor amount of the red pigment according to claim 1.

5 20. A coating composition comprising a major amount of a coating vehicle and a minor amount of the red pigment composition made according to claim 9.

10 21. An ink composition comprising a major amount of an ink vehicle and a minor amount of the red pigment according to claim 1.

22. An ink composition comprising a major amount of an ink vehicle and a minor amount of the red pigment composition made according to claim 9.

15 23. An electrostatic toner composition comprising a major amount of an electrostatic toner and a minor amount of the red pigment according to claim 1.

20 24. An electrostatic toner composition comprising a major amount of an electrostatic toner and a minor amount of the red pigment composition made according to claim 9.